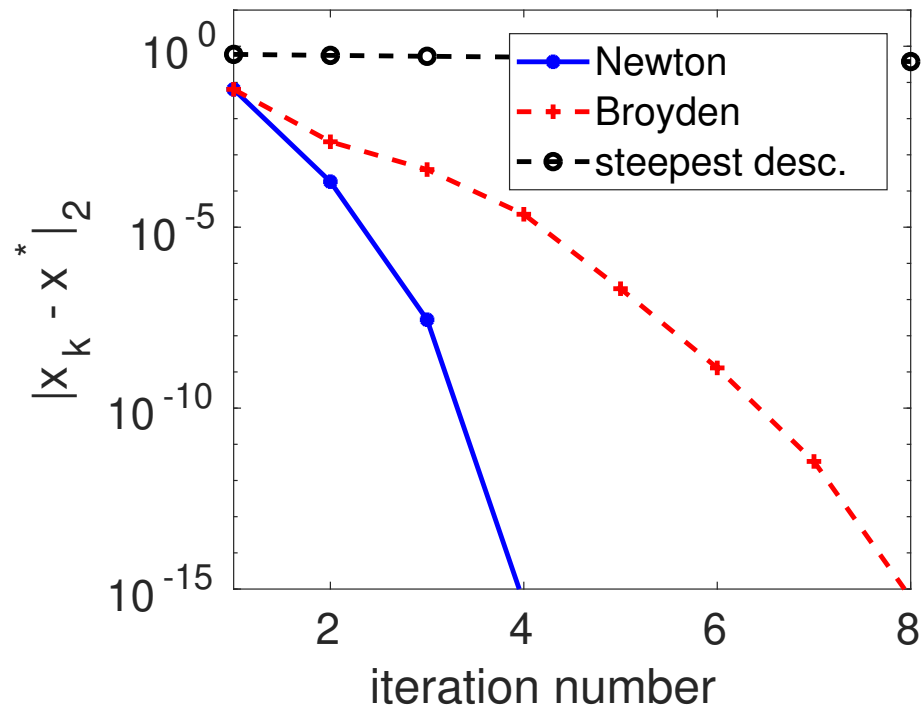


Broyden's method

$$F(\mathbf{x}) = \begin{pmatrix} (x_1 + 3)(x_2^3 - 7) + 18 \\ \sin(x_2 e^{x_1} - 1) \end{pmatrix} = 0, \quad \mathbf{x}^* = (0, 1)^\top$$

- Broyden with $\mathbf{H}_0 = F'(\mathbf{x}_0)$ and $\mathbf{x}_0 = (-0.5, 1.4)^\top$



also shown:

- Newton's method
- gradient method with step length choice given by Armijo rule with $\beta = 0.5$ and $\sigma = 0.9$